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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/929,527	08/14/2001	Stephen H. Strange	112056-0032	8215

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EXAMINER

PERVEEN, REHANA

ART UNIT	PAPER NUMBER
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2116

DATE MAILED: 12/14/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/929,527

Applicant(s)

STRANGE ET AL.

Examiner

Rehana Perveen

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 18 August 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-71 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-71 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 12 August 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

Response to Amendment

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-4, 9-16, 18-22, 25-28, 31, 32, 36-42, 45-54, and 57-71 are rejected under 35 U.S.C. 103(a) as being unpatentable over Madany et al, Patent No. 5,935,242.

As to claims 1, 22, 28, 38, 41, 42, 45, 48, 49, and 50-53, Madany et al teach fast reboot of a computer (col. 9 lines 11-21) having an attached disk (disk drive 52, figure 3) and an internal RAM (memory device 62, figure 4), retaining a copy of an operating system kernel on a reserved storage location of the RAM (non-volatile memory region, col. 5 lines 30-58), performing predetermined reboot operations with a boot mechanism (col. 6 line 49 – col. 7 line 17), and reloading the operating system at a location in the RAM based upon the copy of the operating system retained at the reserved storage location (col. 10 lines 41-49) after performing the predetermined reboot operations (col. 7 lines 11-51 and col. 8 line 35 – col. 9 line 21). Madany et al also teach loading the original operating system from a disk memory (col. 4 line 61 – col. 5 line 29) and loading it into a flash memory (col. 1 lines 59-62).

Madany et al do not expressly teach the computer having an attached disk array. Madany et al described the claimed invention in a computer system having a single disk drive. It would have been obvious for one of ordinary skill in the art at the time of the invention to utilize Madany et al's fast reboot technique in a number of different well known existing computer systems including a computer system having a disk array without affecting the scope of the claimed invention. One of ordinary skill in the art would be motivated to do so in order to utilize fast rebooting of various types of prior existing computer systems.

As to claims 2 and 31, Madany et al teach the boot mechanism is adapted to perform predetermined full reboot steps based upon a full reboot instruction from the operating system, and wherein the predetermined reboot operations omit the predetermined full reboot steps when the operating system is reloaded from the reserved storage location based upon a warm reboot instruction so as to perform a less-than-full reboot (col. 7 line 38 – col. 8 line 65 and col. 9 lines 1-21).

As to claims 3, 4, 27, 32, and 46, Madany et al teach the predetermined full reboot steps include loading into the memory a copy of on-disk data from which the operating system kernel is reloaded, and the predetermined full reboot steps include at least one of fully clearing of the RAM including the reserved storage location, fully testing the RAM, and testing at least one of an LCD display chip and a serial i/o chip (col. 8 lines 35-47).

As to claims 9 and 26, Madany et al teach predetermined reboot steps comprises loading the in-memory copy of the data at the reserved storage location based upon a disk-stored copy of the data, and the predetermined full reboot steps comprises clearing the reserved storage space, loading on-disk data to generate operating system, and copying the on-disk data to the reserved storage space (col. 8 line 34 – col. 9 line 57).

As to claims 10-13, 25, and 47, Madany et al teach providing a warm reboot instruction in response to a condition that enables less-than-full reboot of the computer, the condition includes at least one of a user-generated warm reboot command and a predetermined repairable software panic condition, setting a flag in the boot mechanism from a full reboot state to a warm reboot state, and reverting to the full reboot if the copy of the data is corrupted (col. 8 lines 2-54).

As to claim 45, Madany et al teach the copy of the operating system is located at a reserved storage space in the computer memory remote from an area controlled by the operating system and that remains uncleared during the fast reboot process (operating system memory region and application program memory region controlled by the operating system are remote from each other, col. 7 line 18 – col. 8 line 54).

Claims 14-16, 39, 54, and 57-69 are directed to the system implementing the method of claims 1-4, 9-13, 22, 25-28, 31, 32, 38, and 41, 42, 45-53, and claims 18-21, 36, 37, 40, 70, and 71 are directed to the computer readable medium of claims 1-4, 9-

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13, 22, 25-28, 31, 32, 38, and 41, 42, 45-53. Madany et al teach the method as set forth in claims 1-4, 9-13, 22, 25-28, 31, 32, 38, and 41, 42, 45-53. Therefore, Madany et al also teach the system as set forth in claims 14-16, 39, 54, and 57-69. Further, Madany et al teach the computer readable medium as set forth in claims 18-21, 36, 37, 40, 70, and 71.

Claims 5-8, 17, 23, 24, 29, 30, 33-35, 43, 44, 55, and 56 are rejected under 35 U.S.C. 103(a) as being unpatentable over Madany et al, Patent No. 5,935,242, in view of VanRooven et al, Patent No. 6,591,376.

As to claims 5-8, 23, 24, 29, 30, 43, and 44, Madany et al teach all of the limitations as stated above. However, Madany et al do not teach the reserved storage location comprising a compressed image of the operating system kernel, uncompressing and extracting to form the operating system thereby freeing-for-overwrite the space to load the compressed image of the operating system kernel, and copying the compressed image into the reserved storage space from the compressed image of the operating system in the RAM.

VanRooven et al teach a compressed image of an operating system kernel in an embedded computer memory, uncompressing and extracting to form the operating system thereby freeing-for-overwrite the space to load the compressed image of the operating system kernel, and copying the compressed image into the embedded

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memory from the compressed image of the operating system in the RAM (col. 2 line 66 - col. 3 line 26 and col. 5 line 34 – col. 6 line 60).

It would have been obvious for one of ordinary skill in the art at the time of the invention to combine the teachings of Madany et al and VanRooven et al because both are commonly directed to securing operating system for faster reboot without relying upon ROM memory, and VanRooven et al's compressed kernel image, when incorporated into Madany et al's computer system, would have enabled the system to operate with improved space efficiency.

Claims 17, 55, and 56 are directed to the system implementing the method of claims 5-8, 23, 24, 29, 30, 43, and 44, and claims 33-35 are directed to the computer readable medium of claims 5-8, 23, 24, 29, 30, 43, and 44. Madany et al and VanRooven et al, in combination, teach the method as set forth in claims 5-8, 23, 24, 29, 30, 43, and 44. Therefore, Madany et al and VanRooven et al, also in combination, teach the system as set forth in claims 17, 55, and 56. Further, Madany et al and VanRooven et al, also in combination, teach the computer readable medium as set forth in claims 33-35.


Response to Arguments

Applicant's arguments with respect to claims 1-71 have been considered but are moot in view of the new ground(s) of rejection.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Rehana Perveen whose telephone number is 571-272-3676. The examiner can normally be reached on 8:00am - 4:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Lynne H Browne can be reached on 571-272-3670. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



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